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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,544	09/28/2001	Gan-Moog Chow	N.C. 82,637	3267

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EXAMINER	
SAVAGE, JASON L	
ART UNIT	**PAPER NUMBER**
1775	

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,544	Applicant(s) CHOW ET AL.	
	Examiner Jason L Savage	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-22,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-22,24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 19-22 and 24-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitations in claims 19 and 20 and the claims dependent thereon that there be no splat microstructures greater than several microns thick is indefinite since 'several' does not indicate what particular thicknesses ~~in~~ are permissible.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 19-20 are rejected under 35 U.S.C. 102(e) as anticipated Hunt et al. (5,997,956).

Hunt teaches thin films comprising nanostructured material (col. 11, ln. 52-65) having particle sizes of less than 100 nm (col. 24, ln. 21-22). Hunt further teaches that the material may be alumina, zirconia, or yttria (col. 20, ln. 51-56). Hunt also teaches that the films are formed by plasma spraying solution precursors which are very finely atomized (col 5, ln. 17-34). While Hunt is silent to the size of splat microstructures within the film, it is the position of the Examiner that spraying very finely atomized precursors would have resulted in a film devoid of splat microstructures, particularly given that Hunt teaches that the maximum droplet size of said precursors is further taught to be less than 2 μm (col. 8, ln. 28-30). The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Regarding claims 20, Hunt teaches that the nanostructure may be multilayered (col. 16, ln. 28-31 and col. 23, ln. 37-63).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 21-22 and 24-25 are rejected under 35 U.S.C. 103(a) as obvious over Hunt et al. (5,997,956).

Hunt teaches that the nanostructure may be multilayered and graded (col. 16, ln. 28-31); however it does not exemplify an embodiment that is both multilayered and graded. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a multilayer nanostructure which was graded since it is specifically suggested as a suitable structure by the reference.

Regarding the limitation in claims 21 and 25 that the grading is fine scale grading, compositionally and microstructurally. Since the structure is a nanostructure, it would be necessary to have any grading be fine scale.

Regarding the limitation in claims 22 and 24 that the layers are integrated by grading and have continuous interfaces, the mere recitation of grading by Hunt is a teaching that the layers are integrated.

Response to Arguments

7. Applicant's arguments filed 8-25-03 have been fully considered but they are not persuasive.

Applicant states on page 4 paragraph 3 of the Amendment that it is believed claims 19 and 20 are no longer properly rejectionable on the Hunt reference since the claims specify that the thin film is made by a thermal spraying solution precursors and are devoid of splat microstructures grater than several microns thick whereas the Hunt reference discloses powder formation and thin film deposition by vapor deposition.

To the contrary, Hunt also teaches thin film deposition by plasma spraying (col. 5, ln. 17-18) a spraying solution made of chemical precursors wherein the spraying solution is very finely atomized (col. 5, ln. 20-34). While Hunt is silent to the size or presence of splat microstructures within the film, it is the position of the Examiner that spraying very finely atomized precursors would have resulted in a film devoid of splat microstructures greater than several microns thick. To further support the Examiner's position, the disclosure from Applicant on the bottom of page 5 of the Amendment that from commercial experience, sprayable powders need to be of a size of about 30 microns or larger for efficient deposition and that as a result, these larger diameter agglomerates produce longer splat microstructures in the coating. However, Hunt teaches that the maximum droplet size of said precursors is taught to be less than 2 μm (col. 8, ln. 28-30), far less than the 30 micron or greater sized particles cited by Applicant as sizes which produce the undesirable splat microstructures. Applicant has not shown or argued why he believes the coating of Hunt would not meet the claim limitations.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-2351.

Jason Savage

9-1-03

JOHN J. ZIMMERMAN
PRIMARY EXAMINER